REMARKS

Upon entry of the present amendment, claims 1, 2, 5 and 6 will have been amended while claim 13 will have been submitted for consideration by the Examiner. Accordingly, claims 1-6 and 13 are subject to examination while claims 7-12 are withdrawn from consideration based on the Restriction Requirement issued in the present application on September 20, 2004.

In this regard, Applicants note that the Examiner has not acknowledged Applicants Response to Restriction Requirement with Traverse filed on October 19, 2004 and refiled on June 1, 2005, nor has the Examiner made the Restriction Requirement final.

Initially, Applicants respectfully thank the Examiner for accepting the drawings filed in the present application on June 26, 2003. Additionally, Applicants respectfully thank the Examiner for acknowledging their Claim for Foreign Priority under 35 U.S.C. § 119 as well as confirming receipt of the certified copy of the priority document. Finally, Applicants respectfully thank the Examiner for consideration of the documents cited in the Information Disclosure Statement filed in the present application on October 3, 2003.

Turning to the outstanding Official Action, the Examiner rejected claims 1-5 under 35 U.S.C. § 102(a) or (e) as being anticipated by any one of SHIMOYAMA et al. (U.S. Published Application No. 2003/0048355) or SOKKIA (July 2002). Claim 6 was rejected under 35 U.S.C. § 103 as unpatentable over SHIMOYAMA et al. or SOKKIA.

Applicants respectfully traverse each of these rejections and submit that they are inappropriate with respect to any of the claims in the present application. Accordingly, Applicants respectfully request reconsideration and withdrawal of each of the outstanding rejections together with an indication of the allowability of all the claims in the present application. Such action is respectfully requested and is now believed to be appropriate and proper.

Applicants invention is drawn to an automatic surveying system including a surveying device. A collinear line calculating processor obtains a collinear line which satisfies a collinear condition for an arbitrarily designated point on a schematic image. The designated point has a known positional relationship to the surveying device. A sighting-direction control processor performs a sighting-direction control process to control a sighting-direction of the surveying device to move along the collinear line. An object point searching processor searches for an object point, a position of the object point being determinable as a point on the collinear line by measuring the sighting-direction with the surveying device while performing the sighting-direction control process. Accordingly, a position obtained by the object point searching processor coincides with an object point that corresponds to the designated point on the schematic image.

The combination of features recited in, e.g., Applicants claim 1, is not taught, disclosed nor rendered obvious by either of SHIMOYAMA et al. or SOKKIA. Accordingly, reconsideration of the rejection is respectfully submitted.

In a non-limiting exemplary embodiment of the present invention as described in Applicants disclosure, the collinear line calculating processor obtains a collinear line which is illustrated in Fig. 7 as LNc for an arbitrary point Q on a schematic image having a known positional relationship with respect to the surveying device 10. The sighting direction control processor controls the surveying device 10 to sight along the collinear line LNc. The object point searching processor searches for an object point (R_1, R_2, R_3... R_J), the position of the object point being determinable as a point on the collinear line LNc by measuring the sighting-direction with the surveying device 10 during the sighting direction control process. A position obtained by the object point search processor coincides with an object point R_J that corresponds to a designated point Q so that three-dimensional information of the designated point is known.

In particular, and referring to Figs. 6 and 7, which describe an exemplary and non-limiting embodiment of the present invention, the computer 40 obtains the collinear line LNc that satisfies the collinear condition of an arbitrary pixel within the surveying area A. For example, the image point Q_6' corresponds to the object point Q_6 (Fig. 7). With further reference to Fig. 7, the surveying instrument 10 scans along the collinear line by moving the collimation axis LNo of the surveying instrument along the collinear line such that the collimation axis LNo intersects the collinear line LNc thus measurement data is obtained at predetermined intervals such as points R_1 through R_6. The object point Q_6 is searched for with reference to

the measurement coordinate values obtained when sighting the surveying instrument 10 at each of the points R_1 through R_6.

The point R_6 on the collinear line LNc coincides with the object point Q_6 when the collinear line LNc intersects with the subject within the surveying area A (Fig. 6). In other words, image coordinates calculated from surveying coordinates that are obtained when the surveying instrument is sighted at the point R_6 coincide with image coordinates of the designated image point Q_6'. Accordingly, automatic measurement for an object point that corresponds to an arbitrarily designated pixel on a schematic image can be achieved by performing surveying along the collinear line corresponding to the arbitrarily designated pixel and searching for an object point, the image coordinates of which are obtained from the surveying coordinates so as to substantially coincide with the image coordinates of the arbitrarily designated pixel.

The details of the object point search performed by the object point searching processor is illustrated in step 303 of Fig. 8 and is detailed in Fig. 9. In step 401, the collinear line or vector is obtained. Based on the unit collinear vector obtained in step 401, the surveying coordinates of the sighting-points R_1 through R_J are calculated, and the sighting-direction is defined. In step 404, measurement of the locations along the sighting-direction defined in step 403 is performed and the coordinates of the object point are calculated. In step 406, it is determined whether the coordinates of the object point Q_I coincide with the image coordinates of the collinear line LNc. The above combination of features, as recited in the terminology of,

e.g., Applicants claim 1 is not taught, disclosed nor rendered obvious by any of the references relied upon by the Examiner.

Applicants initially note SHIMOYAMA et al. is entitled to an effective date of August 8, 2002. In direct contrast, the present application is entitled to a filed date of June 28, 2002 based upon Japanese Application No. 2002-190599. Accordingly, Applicants are preparing and will submit a certified translation of the foreign priority document and thus, overcome the availability of the SHIMOYAMA et al. patent publication as a reference available against the claims of the present application.

Applicants further note that the SOKKIA publication is also entitled to a publication date of July, 2002 which is also after the effective filing date to which the present application is entitled.

Nevertheless, regarding the SOKKIA publication, it is respectfully submitted that the translation comprising pages 1-3 do not disclose a linear line calculating processor, a sighting-direction control processor or an object point searching processor as recited in Applicants claim 1. Accordingly, totally independently of the submission of the certified copy, it is respectfully submitted that the features described in the above-noted publication are inadequate and insufficient to either anticipate or even to render unpatentable the combination of features recited in Applicants claim 1.

SHIMOYAMA et al. that is assigned to the same entity as referred to in the SOKKIA publication, is directed to an automatic collimation surveying apparatus with an image pick-up device. In particular, a wide angle camera

89 and a collimating camera 47 are disclosed. However, SHIMOYAMA et al. does not disclose a collinear line calculating processor, a sighting-direction control processor, and an object point searching processor as recited in claim 1. Accordingly, it is respectfully submitted that the combination of features recited in Applicants claims are not taught, disclosed nor rendered obvious by either of the references relied upon by the Examiner.

While Applicants have submitted herewith a certified translation of the foreign priority document thus rendering unavailable against the claims of the present application either of the disclosures relied upon by the Examiner, Applicants respectfully submit that independently of the above, the claims of the present application are clearly patentable over the above-noted documents, at least for the reasons set forth above.

Applicants have submitted claim 13 for consideration by the Examiner. This claim is submitted to be patentable based on the combination of features recited therein which includes substantially all the features of Applicants claim 1 and is thus patentable at least for the reasons set forth above with respect to claim 1.

SUMMARY AND CONCLUSION

Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so. Applicants have amended the pending claims but only to clarify the recitations thereof and without narrowing the scope of the claims. Applicants have additionally submitted an additional claim for consideration.

Applicants have discussed the features of Applicants invention with respect to the non-limiting embodiment described in the disclosure and have related the same to the features recited in Applicants claims. Applicants have further discussed the disclosure of the reference relied upon and have pointed out the significance and substantial shortcomings thereof. Applicants will further submit a certified translation of the foreign priority document.

Thus, Applicants have traversed the Examiner's rejection based on the features of the references and, independently of the above, will have rendered the cited references unavailable with respect to the claims in the present application. Accordingly, Applicants have provided a clear evidentiary basis supporting the patentability of all the claims in the present application and respectfully request an indication to such effect in due course.

Any amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made

for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should the Examiner have any questions or comments regarding this Response, or the present application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
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